

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A computer-implemented method for extending a protocol synchronization period between a Point-to-Point Protocol (PPP) client and a PPP server, wherein the PPP server is located on a wireless communication device, the method comprising:

generating a negative acknowledgment message at the PPP server in response to an Internet Protocol Control Protocol (IPCP) configuration request from the PPP client, wherein the IPCP configuration request comprises a requested IP address parameter, wherein the ~~negative acknowledgment message generating~~ includes deliberately arbitrary ~~comprises including~~ supplemental IPCP information instead of an IP address in response to the requested IP address parameter and ~~does not include~~ deliberately excluding an IP address ~~option in order~~ to extend the protocol synchronization period, wherein the supplemental IPCP information comprises a type of address different from a potentially valid IP address assignable to the PPP client for establishing a PPP communication link; and

generating an acknowledgment message at the PPP server in response to the IPCP configuration request from the PPP client if the PPP server has received all required parameters to complete the protocol synchronization period.

2. (Currently Amended) The method of Claim 1, further comprising:

generating a new negative acknowledgment message at the PPP server in response to a repeated IPCP configuration request from the PPP client, wherein the new negative acknowledgment message includes different supplemental IPCP information from a previous negative acknowledgment message and ~~does not include~~ further deliberately excludes an IP address ~~option~~.

3. (Currently Amended) The method of Claim 1, further comprising:

generating a new negative acknowledgment message at the PPP server in response to a repeated IPCP configuration request from the PPP client, wherein the new negative acknowledgement message includes the same supplemental IPCP information as a previous negative acknowledgement message and ~~does not include~~ further deliberately excludes an IP address ~~option~~.

4. (Currently Amended) The method of Claim 1, wherein the ~~arbitrary~~ supplemental IPCP information ~~[[is]] comprises a an-arbitrary~~ Domain Naming System (DNS) address.

5. (Currently Amended) The method of Claim 1, wherein the ~~arbitrary~~ supplemental IPCP information ~~[[is]] comprises a an-arbitrary~~ Windows Internet Naming Service (WINS) address.

6. (Currently Amended) Apparatus for extending a protocol synchronization period between a Point-to-Point Protocol (PPP) client and a PPP server, wherein the PPP server is located on a wireless communication device, the apparatus comprising:

at least one memory element; and

at least one processing element configured to execute a set of computer-implemented instructions stored in the at least one memory element, the set of computer-implemented instructions for:

generating a negative acknowledgment message at the PPP server in response to an Internet Protocol Control Protocol (IPCP) configuration request from the PPP client, wherein the IPCP configuration request comprises a requested IP address parameter, wherein the ~~negative acknowledgement message generating~~ includes ~~deliberately arbitrary~~ comprises including supplemental IPCP information instead of an IP address in response to the requested IP address parameter and ~~does not include~~ deliberately excluding an IP address ~~option in order~~ to extend the protocol synchronization period, wherein the supplemental IPCP information comprises a type of address different from a

potentially valid IP address assignable to the PPP client for establishing a PPP communication link; and

generating an acknowledgement message at the PPP server in response to the IPCP configuration request from the PPP client if the PPP server has received all required parameters to complete the protocol synchronization period.

7. (Previously Presented) The apparatus of Claim 6, wherein the at least one processing element is located in an electronic device that hosts the PPP client.

8. (Previously Presented) The apparatus of Claim 6, wherein the at least one processing element is located in an electronic device that does not host the PPP client.

9. (Currently Amended) A computer-implemented apparatus for extending a protocol synchronization period between a Point-to-Point Protocol (PPP) client and a PPP server, wherein the PPP server is located on a wireless communication device, the apparatus comprising:

means for generating a negative acknowledgment message at the PPP server in response to an Internet Protocol Control Protocol (IPCP) configuration request from the PPP client, wherein the IPCP configuration request comprises a requested IP address parameter, wherein the ~~negative acknowledgement message generating~~ includes ~~deliberately arbitrary~~ comprises including supplemental IPCP information instead of an IP address in response to the requested IP address parameter and does not include deliberately excluding an IP address option in order to extend the protocol synchronization period, wherein the supplemental IPCP information comprises a type of address different from a potentially valid IP address assignable to the PPP client for establishing a PPP communication link; and

means for generating an acknowledgement message at the PPP server in response to the IPCP configuration request from the PPP client if the PPP server has received all required parameters to complete the protocol synchronization period.

10. (Currently Amended) A computer-implemented method for extending a protocol synchronization period between a Point-to-Point (PPP) client and a PPP server, comprising:

engaging the PPP client in an Internet Protocol Control Protocol (IPCP) negotiation to obtain IPCP parameters operable in a PPP communication link based on an initial configuration request message received from the PPP client, wherein the initial configuration request message comprises initial IPCP parameters comprising an initially-requested IP address; and

triggering the PPP client to generate subsequent configuration request messages comprising the initially-requested IP address ~~that include deliberately arbitrary~~ based on corresponding negative acknowledgement messages excluding an IP address and including supplemental IPCP information instead of the IP address and that do not include an IP address option in order to extend the protocol synchronization period, wherein the supplemental IPCP information comprises a type of address different from a potentially valid IP address assignable to the PPP client for establishing a PPP communication link.

11. (New) The method of claim 10, further comprising triggering the PPP client to avoid dropping a supplemental IPCP information parameter from the subsequent configuration request messages to avoid a supplemental IPCP information request timeout.

12. (New) The method of claim 11, wherein triggering the PPP client to avoid dropping the supplemental IPCP information further comprises including subsequent supplemental IPCP information in the negative acknowledgement message, wherein the subsequent supplemental IPCP information comprises a type of address different from a potentially valid IP address assignable to the PPP client for establishing a PPP communication link.

13. (New) The method of claim 11, wherein triggering the PPP client to avoid dropping the supplemental IPCP information further comprises including arbitrary subsequent supplemental IPCP information in the negative acknowledgement message.

14. (New) A computer-implemented method of extending a protocol synchronization period, comprising:

receiving at a Point-to-Point Protocol (PPP) server an Internet Protocol Control Protocol (IPCP) configuration request from a PPP client, wherein the IPCP configuration request comprises requested IPCP parameters;

negotiating by the PPP server for IPCP parameters from an interworking function (IWF) based on the IPCP configuration request;

transmitting to the PPP client a negative acknowledgment message in response to the IPCP configuration request prior to a completion of the negotiating in order to extend the protocol synchronization period, wherein the transmitting further comprises including, regardless of the requested IPCP parameters, a predetermined address different from a potentially valid IP address assignable to the PPP client for establishing a PPP communication link with the IWF and deliberately omitting an IP address from the negative acknowledgement message; and

transmitting to the PPP client an acknowledgement message in response to the IPCP configuration request if the PPP server has received the IPCP parameters to complete the protocol synchronization period.

15. (New) The method of claim 14, further comprising triggering the PPP client to maintain at least a portion of the requested IPCP parameters in subsequent IPCP configuration requests based on including a supplemental IPCP parameter in the negative acknowledgement message.

16. (New) The method of claim 14, further comprising triggering the PPP client to maintain an IP address parameter value corresponding to the requested IPCP parameters of the received IPCP configuration request in subsequent IPCP configuration

requests based on deliberately omitting the IP address from the IP address field of the negative acknowledgement message.

17. (New) The method of claim 14, further comprising:

generating a new negative acknowledgment message at the PPP server in response to a repeated IPCP configuration request from the PPP client during the negotiating, wherein the generating further comprises including another predetermined address different from a previous predetermined address in a previous negative acknowledgment message and deliberately omitting an IP address from the IP address field in the new negative acknowledgment message.

18. (New) The method of claim 14, further comprising:

generating a new negative acknowledgment message at the PPP server in response to a repeated IPCP configuration request from the PPP client during the negotiating, wherein the generating further comprises including the same predetermined address as in a previous negative acknowledgment message and deliberately omitting an IP address from the IP address field in the new negative acknowledgment message.

19. (New) The method of claim 14, wherein including the predetermined address different from a valid IP address in the negative acknowledgement message further comprises including supplemental IPCP information.

20. (New) The method of claim 19, wherein including the supplemental IPCP information further comprises including at least one of a Domain Naming System (DNS) address or a Windows Internet Naming Service (WINS) address.

21. (New) An apparatus for extending a protocol synchronization period, comprising:

at least one memory element; and

at least one processing element configured to execute a set of computer-implemented instructions stored in the at least one memory element, the set of computer-implemented instructions operable for:

receiving at a Point-to-Point Protocol (PPP) server an Internet Protocol Control Protocol (IPCP) configuration request from a PPP client, wherein the IPCP configuration request comprises requested IPCP parameters;

negotiating by the PPP server for IPCP parameters from an interworking function (IWF) based on the IPCP configuration request;

transmitting to the PPP client a negative acknowledgment message in response to the IPCP configuration request prior to a completion of the negotiating in order to extend the protocol synchronization period, wherein the transmitting further comprises including, regardless of the requested IPCP parameters, a predetermined address different from a potentially valid IP address assignable to the PPP client for establishing a PPP communication link with the IWF and deliberately omitting an IP address from the negative acknowledgement message; and

transmitting to the PPP client an acknowledgement message in response to the IPCP configuration request if the PPP server has received the IPCP parameters to complete the protocol synchronization period.

22. (New) The apparatus of claim 21, wherein the set of computer-implemented instructions is further operable for triggering the PPP client to maintain at least a portion of the requested IPCP parameters in subsequent IPCP configuration requests based on including a supplemental IPCP parameter in the negative acknowledgement message.

23. (New) The apparatus of claim 21, wherein the set of computer-implemented instructions is further operable for triggering the PPP client to maintain an IP address parameter value corresponding to the requested IPCP parameters of the received IPCP configuration request in subsequent IPCP configuration requests based on deliberately omitting the IP address from the IP address field of the negative acknowledgement message.

24. (New) The apparatus of claim 21, wherein the set of computer-implemented instructions is further operable for:

generating a new negative acknowledgment message at the PPP server in response to a repeated IPCP configuration request from the PPP client during the negotiating, wherein the generating further comprises including another predetermined address different from a previous predetermined address in a previous negative acknowledgment message and deliberately omitting an IP address from the IP address field in the new negative acknowledgment message.

25. (New) The apparatus of claim 21, wherein the set of computer-implemented instructions is further operable for:

generating a new negative acknowledgment message at the PPP server in response to a repeated IPCP configuration request from the PPP client during the negotiating, wherein the generating further comprises including the same predetermined address as in a previous negative acknowledgment message and deliberately omitting an IP address from the IP address field in the new negative acknowledgment message.

26. (New) The apparatus of claim 21, wherein the predetermined address different from a valid IP address in the negative acknowledgement message further comprises supplemental IPCP information.

27. (New) The apparatus of claim 26, wherein the supplemental IPCP information further comprises at least one of a Domain Naming System (DNS) address or a Windows Internet Naming Service (WINS) address.